

internucleoside linkage and L_2 is a racemic phosphorothioate internucleoside linkage.

5. The method of claim ~~17~~ wherein L_1 and L_2 both are Rp phosphorothioate internucleoside linkages.

6. The method of claim ~~17~~ wherein L_1 or L_2 is CH_2-O-NR .

7. The method of claim ~~17~~ wherein L_1 or L_2 is CH_2-NR-O .

8. The method of claim ~~17~~ wherein L_1 and L_2 are both CH_2-O-NR .

9. The method of claim ~~17~~ wherein L_1 and L_2 are both CH_2-NR-O .

10. The method of claim ~~17~~ wherein R is alkyl.

11. The method of claim ~~17~~ wherein R is methyl.

12. The method of claim ~~17~~ wherein at least one of said nucleosides includes a ribose sugar portion.

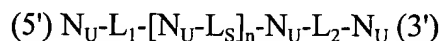
13. The method of claim ~~17~~ wherein at least one of said nucleosides includes a deoxyribose sugar portion

14. The method of claim ~~17~~ wherein n is about 5 to about 50.

15. The method of claim ~~17~~ wherein n is about 8 to about 30.

17. A method of modulating the production or activity of a protein in an

organism, comprising contacting said organism with a compound comprising a plurality of covalently-bound nucleosides, said compound having the formula:



wherein:

each N_U is, independently, a nucleoside that includes a ribose or deoxyribose sugar portion and a base portion;

L_S is a racemic phosphorothioate internucleoside linkage;

n is 1-200; and

L_1 and L_2 are independently selected such that:

L_1 is a Sp phosphorothioate internucleoside linkage, L_2 is a racemic phosphorothioate internucleoside linkage, and said compound has greater than about 60% stereoisomeric purity; or

L_1 and L_2 both are Sp phosphorothioate internucleoside linkages and said compound has greater than about 60% stereoisomeric purity; or

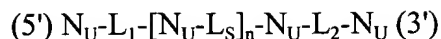
L_1 is a Rp phosphorothioate internucleoside linkage, L_2 is a racemic phosphorothioate internucleoside linkage, and said compound has greater than about 60% stereoisomeric purity; or

L_1 and L_2 both are Rp phosphorothioate internucleoside linkages and said compound has greater than about 60% stereoisomeric purity; or

L_1 and L_2 , independently, have the formula CH_2-O-NR or CH_2-NR-O wherein R is H, alkyl having 1 to about 10 carbon atoms, alkenyl having 2 to about 10 carbon atoms, alkynyl having 2 to about 10 carbon atoms; alkaryl having 7 to about 14 carbon atoms, aralkyl having 7 to about 14 carbon atoms.

18. A method of treating an organism having a disease characterized by the undesired production of a protein, said method comprising contacting said organism with a compound comprising a plurality of covalently-bound nucleosides, said compound having the

formula:



wherein:

each N_U is, independently, a nucleoside that includes a ribose or deoxyribose sugar portion and a base portion;

L_S is a racemic phosphorothioate internucleoside linkage;

n is 1-200; and

L_1 and L_2 are independently selected such that:

L_1 is a Sp phosphorothioate internucleoside linkage, L_2 is a racemic phosphorothioate internucleoside linkage, and said compound has greater than about 60% stereoisomeric purity; or

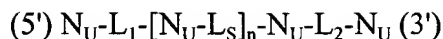
L_1 and L_2 both are Sp phosphorothioate internucleoside linkages and said compound has greater than about 60% stereoisomeric purity; or

L_1 is a Rp phosphorothioate internucleoside linkage, L_2 is a racemic phosphorothioate internucleoside linkage, and said compound has greater than about 60% stereoisomeric purity; or

L_1 and L_2 both are Rp phosphorothioate internucleoside linkages and said compound has greater than about 60% stereoisomeric purity; or

L_1 and L_2 , independently, have the formula CH_2-O-NR or CH_2-NR-O wherein R is H, alkyl having 1 to about 10 carbon atoms, alkenyl having 2 to about 10 carbon atoms, alkynyl having 2 to about 10 carbon atoms; alkaryl having 7 to about 14 carbon atoms, aralkyl having 7 to about 14 carbon atoms.

19. A method of assaying a nucleic acid, comprising contacting a solution suspected to contain said nucleic acid with a compound comprising a plurality of covalently-bound nucleosides, said compound having the formula:



wherein:

each N_U is, independently, a nucleoside that includes a ribose or deoxyribose sugar portion and a base portion;

L_S is a racemic phosphorothioate internucleoside linkage;

n is 1-200; and

L_1 and L_2 are independently selected such that:

L_1 is a Sp phosphorothioate internucleoside linkage, L_2 is a racemic phosphorothioate internucleoside linkage, and said compound has greater than about 60% stereoisomeric purity; or

L_1 and L_2 both are Sp phosphorothioate internucleoside linkages and said compound has greater than about 60% stereoisomeric purity; or

L_1 is a Rp phosphorothioate internucleoside linkage, L_2 is a racemic phosphorothioate internucleoside linkage, and said compound has greater than about 60% stereoisomeric purity; or

L_1 and L_2 both are Rp phosphorothioate internucleoside linkages and said compound has greater than about 60% stereoisomeric purity; or

L_1 and L_2 , independently, have the formula CH_2-O-NR or CH_2-NR-O wherein R is H, alkyl having 1 to about 10 carbon atoms, alkenyl having 2 to about 10 carbon atoms, alkynyl having 2 to about 10 carbon atoms; alkaryl having 7 to about 14 carbon atoms, aralkyl having 7 to about 14 carbon atoms.

Please add new claims 20-47 as indicated below:

--20. (New) The method of claim 18 wherein L_1 is a Sp phosphorothioate internucleoside linkage and L_2 is a racemic phosphorothioate internucleoside linkage.

21. (New) The method of claim 18 wherein L_1 and L_2 both are Sp

phosphorothioate internucleoside linkages.

22. (New) The method of claim ~~18~~ wherein L_1 is a Rp phosphorothioate internucleoside linkage and L_2 is a racemic phosphorothioate internucleoside linkage.

23 (New) The method of claim ~~18~~ wherein L_1 and L_2 both are Rp phosphorothioate internucleoside linkages.

24. (New) The method of claim ~~18~~ wherein L_1 or L_2 is $\text{CH}_2\text{-O-NR}$.

25. (New) The method of claim ~~18~~ wherein L_1 or L_2 is $\text{CH}_2\text{-NR-O}$.

26. (New) The method of claim ~~18~~ wherein L_1 and L_2 are both $\text{CH}_2\text{-O-NR}$.

27. (New) The method of claim ~~18~~ wherein L_1 and L_2 are both $\text{CH}_2\text{-NR-O}$.

28. (New) The method of claim ~~18~~ wherein R is alkyl.

29. (New) The method of claim ~~18~~ wherein R is methyl.

30. (New) The method of claim ~~18~~ wherein at least one of said nucleosides includes a ribose sugar portion.

31. (New) The method of claim ~~18~~ wherein at least one of said nucleosides includes a deoxyribose sugar portion

32. (New) The method of claim ~~18~~ wherein n is about 5 to about 50.

33. (New) The method of claim ~~18~~ wherein n is about 8 to about 30.

34. (New) The method of claim ~~19~~ wherein L_1 is a Sp phosphorothioate internucleoside linkage and L_2 is a racemic phosphorothioate internucleoside linkage.

35. (New) The method of claim ~~19~~ wherein L_1 and L_2 both are Sp phosphorothioate internucleoside linkages.

36. (New) The method of claim ~~19~~ wherein L_1 is a Rp phosphorothioate internucleoside linkage and L_2 is a racemic phosphorothioate internucleoside linkage.

37. (New) The method of claim ~~19~~ wherein L_1 and L_2 both are Rp phosphorothioate internucleoside linkages.

38. (New) The method of claim ~~19~~ wherein L_1 or L_2 is $\text{CH}_2\text{-O-NR}$.

39. (New) The method of claim ~~19~~ wherein L_1 or L_2 is $\text{CH}_2\text{-NR-O}$.

40. (New) The method of claim ~~19~~ wherein L_1 and L_2 are both $\text{CH}_2\text{-O-NR}$.

41. (New) The method of claim ~~19~~ wherein L_1 and L_2 are both $\text{CH}_2\text{-NR-O}$.

42. (New) The method of claim ~~19~~ wherein R is alkyl.

43. (New) The method of claim ~~19~~ wherein R is methyl.

44. (New) The method of claim ~~19~~ wherein at least one of said nucleosides includes a ribose sugar portion.